IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: BARROUX

Serial No.:

Filed: July 6, 2001

For: Modelling Method Allowing To Predict As A Function Of Time The Detailed Composition of Fluids Produced By An Underground Reservoir Under Production

Group:

Examiner:

PRELIMINARY AMENDMENT

Assistant Commissioner
 for Patents
Washington, D.C. 20231

July 6, 2001

Sir:

Prior to examination on the merits of this application and <u>prior to calculation of the filing fee</u>, please amend the above-identified application as follows:

<u>IN THE CLAIMS</u>:

Please amend the claims to read as follows:

3. (Amended) A method as claimed in claim 1, characterized in that thermodynamic parameters such as pressure (p_j^m), temperature (T_j^m), if it varies, the saturations of the liquid (So_j^m) and vapour (Sg_j^m) hydrocarbon phases, the injection or production rates, and, for each pair of cells (j,h), the volume flow rates of the liquid (u_{ojh}^m) and vapour (u_{gjh}^m) phases, are determined in each cell during B.O. type simulation.

4. (Amended) A method as claimed in claim 1, characterized in that the delumping operation comprises determining equilibrium constants from input data specific to the

1

delumping operation, and converting results expressed in volume into results that can be used in molar or mass quantities conservation equations.

5. (Amended) A method as claimed in claim 1, characterized in that each state function is used to generate n+1 additional functional relations in form of data charts or of correlations, that are included in the input data.
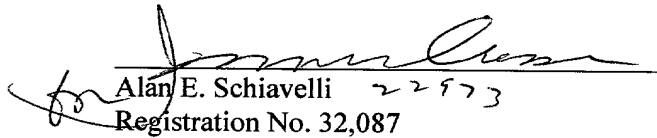
REMARKS

The foregoing amendments are respectfully requested prior to examination on the merits of this application. A marked up copy of the amended claims is attached.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 612.40276X00), and please credit any excess fees to such deposit account.

Respectfully submitted,

ANTONELLI, TERRY, STOUT & KRAUS, LLP

Alan E. Schiavelli
Registration No. 32,087

AES/jla
(703) 312-6600

3

3. (Amended) A method as claimed in claim 1 ~~or 2~~, characterized in that thermodynamic parameters such as pressure (p_j^m), temperature (T_j^m), if it varies, the saturations of the liquid (So_j^m) and vapour (Sg_j^m) hydrocarbon phases, the injection or production rates, and, for each pair of cells (j,h), the volume flow rates of the liquid (u_{ojh}^m) and vapour (u_{gjh}^m) phases, are determined in each cell during B.O. type simulation.

4. (Amended) A method as claimed in ~~any one of the previous claims~~ <u>claim 1</u>, characterized in that the delumping operation comprises determining equilibrium constants from input data specific to the delumping operation, and converting results expressed in volume into results that can be used in molar or mass quantities conservation equations.

5. (Amended) A method as claimed in ~~any one of the previous claims~~ <u>claim 1</u>, characterized in that each state function is used to generate n+1 additional functional relations in form of data charts or of correlations, that are included in the input data.

1